



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,036	12/10/2001	Michel Koehl	017753-150	8634

7590 12/15/2004

Norman H Stepno  
Burns Doane Swecker & Mathis  
PO Box 1404  
Alexandria, VA 22313-1404

EXAMINER


CHEN, STACY BROWN

ART UNIT	PAPER NUMBER
----------	--------------

1648

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/914,036	KOEHL ET AL. 	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stacy B Chen	1648	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 19-38 is/are rejected.  
7) ☒ Claim(s) 38 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Applicant's amendment filed October 20, 2004 is acknowledged and entered. Claims 19-38 are pending and under examination.

#### *Claim Objections*

2. The objection to claim 35 is withdrawn in view of Applicant's amendment.

(*New objections*) Claim 38 is objected to because of the following informalities: claim 38, part (v), there should be a space between the words "diafiltration" and "before". The acronym "TNBP" should be spelled out. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 103*

3. The rejection of claims 19-38 under 35 U.S.C. 103(a) as unpatentable over Shabram *et al.* (WO 96/27677 A2, herein, "Shabram") in view of Berg (WO 98/33572 A1) and Bondoc *et al.* (*J. Indust. Micro. & Biotech.*, 1998, herein, "Bondoc") is withdrawn in view of Applicant's amendment. However, the following new rejection is made.

Claims 19-38 are rejected under 35 U.S.C. 103(a) as unpatentable over Shabram *et al.* Shabram in view of Berg, Bondoc, and Blanche *et al.* (WO98/00524, English version is US Patent 6,458,958, herein, "Blanche"). The rejection is the same as the previous rejection with the addition of Blanche. Blanche teaches beads that have a diameter of about 10 microns (US Patent 6,458,958, column 8, lines 58-65). One would have been motivated to use the bead size chosen by Blanche because the method of Shabram requires the use of a bead, and Blanche teaches the size of the bead for capturing adenoviruses. One would have had a reasonable expectation of

Art Unit: 1648

success that the 10-micron diameter beads would have caught adenovirus because Blanche teaches that a bead having a diameter of 10 microns works for adenoviruses. Therefore, the claims are obvious.

Applicant's arguments have been carefully considered but fail to persuade. Applicant's substantive arguments are primarily directed to the following:

- Applicant argues that Shabram's disclosure regarding the use of fluidized bed chromatography is limited to an all-inclusive list which fails to render the claims obvious. Applicant also argues that Shabram teaches that the use of cross-linked agarose columns is in the same paragraph that discusses hydrophobic interaction chromatography. Therefore, there is no motivation to perform anion exchange chromatography in a fluidized bed using an agarose matrix and a central core.
  - In response, the fact that Shabram suggests the use of fluidized bed chromatography in one sentence in the whole document is not evidence that one of ordinary skill in the art would not have considered it to be an alternate method. Further, regarding the use of cross-linked agarose, Shabram teaches in general that the support material can be cross-linked dextran and cross-linked agarose (page 9, lines 1-12). Therefore, Shabram suggests the use of fluidized bed chromatography and the support comprising agarose/dextran.
- Applicant argues that Shabram fails to suggest the combination of the two claimed chromatographic steps (anion exchange chromatography in fluidized bed followed by gel filtration chromatography). Applicant points to Huyghe's article (*Human Gene Therapy*, 6:1403, 1995) as evidence that recovery of virus off a gel filtration column was very low.

Art Unit: 1648

In view of Shabram's lack of motivation to use both methods and Huyghe's experimental data showing that recovery of virus was low using gel filtration, there is no motivation to combine the two methods together.

- In response, the teachings of Huyghe do not directly relate to the claimed method.

The claimed method requires the use of both methods (fluidized bed and gel filtration). The use of a single method is not expected to have the same result as the use of both methods. Applicant is arguing that the results with a single method would dissuade one of ordinary skill to not consider the use of the method. However, one of ordinary skill knows that other factors weigh into the choice of a method besides the results of one experiment. The motivation to combine the methods comes from Bondoc, which teaches that IMAC can be substituted with gel filtration chromatography (Bondoc, page 318, first column, third full paragraph).

- Berg does not suggest that viruses could be purified with the fluidized bed process. Berg teaches that fluidized bed chromatography is normally limited to compounds having a molecular weight below 1,000,000 daltons. One would not have had a reasonable expectation of success with purifying adenoviruses because the size of the adenovirus is about 150 fold above Berg's teaching that the normal weight is below 1,000,000 daltons.

- In response, it is the Office's position that Berg is not excluding the use of fluidized bed chromatography for larger compounds. Note that Shabram discloses the use of a fluidized bed for purifying recombinant viral vectors (discussed above). Applicant has not provided evidence that fluidized bed

Art Unit: 1648

chromatography for purifying viruses was discouraged. Berg only teaches the “usual” molecular weight and does not discourage purification of larger molecules.

As to Applicant’s assertion that the limitations of dependent claims 20-38 have not been addressed by specifically showing where each limitation is found in the prior art references, Applicant is directed to the previous Office actions of record which detail the limitations of claims 20-38.

#### ***Conclusion***

4. No claim is allowed. Claims 19-38 remain rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1648

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stacy B. Chen whose telephone number is 571-272-0896. The examiner can normally be reached on M-F (7:00-4:30). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James C. Housel can be reached on 571-272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

*SB*

Stacy B. Chen  
December 10, 2004

*James C. Housel*  
JAMES HOUSEL 12/13/04  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600